

Regarding claim 38, Lemaire, in Fig. 1, discloses an optical grating in a fiber which is temperature compensated by the provision of mechanical element 10, which is cylindrical and has the same length as the grating.

The current application discloses a bulk holographic grating as opposed to a fiber grating disclosed by Lemaire et al. A volume holographic grating does not have a waveguiding core like a fiber does. The volume grating is present throughout the volume of the material. Because it is not waveguided, the cross-section of the holographic grating is of the order of several millimeter square with length of several centimeters. The fiber grating disclosed has a cross section of several tens of micrometers and length of several centimeters. Therefore the ratio between the cross-section and length of the volume holographic grating is several orders of magnitude higher than for a fiber grating. Because of this fact, the element 10 in Lemaire is applied on the surface of the fiber only.

The grating element used in the rejection is different from the element used in the present invention and therefore the teachings of the present invention cannot be rejected under 35 U.S.C. 102(b).

The functional recitation of claim 38 has been amended.

Claims 42,45,46,48,49,61,62 and 66-73 are dependent claims based on independent claim 38. Inasmuch as claims 38 is allowable, these dependent claims are allowable by definition.

2. Claim Rejections under 35 U.S.C. § 102(e)

Claims 1-5, 8-12, 19,22-33,38-42,45-49,56 and 59-69 are rejected by the Examiner under 35 U.S.C. § 102(e) as being fully anticipated by Sullivan (US 6,621,957).

Claims 38,39,42,45-50, 54 and 55 are rejected under 35 U.S.C 102(e) as being fully anticipated by Myers et al., (US-2003/0210863).

Applicant respectfully disagrees.

Sullivan et al. disclose a mechanical apparatus positioned around a fiber for the purpose of yielding an athermal Bragg grating.

Following the same arguments than in paragraph 1. above, fiber gratings are waveguided whereas volume holographic gratings are not. The ratio between the cross-section and length of the volume holographic grating is several orders of magnitude higher than for a fiber grating. The mechanical methodology presented by Sullivan is not applicable to volume gratings.

Sullivan et al. describe the use of the reflection fiber Bragg grating as (5/42-43) “ Further, the reflective element (grating) may be used in reflection and/or transmission of light”. It is well known by skilled persons in the Art, that fibers are one dimensional waveguides that transmit light forward or backward along the fiber. Fiber gratings (reflective element) are written in the guiding core of the fiber. The purpose of the fiber grating is to reflect a spectral range and transmit light outside this spectral range. The term transmission used by Sullivan follows the explanation above.

The term transmission grating in the current application means that the light is incident on one side of the volume holographic grating and diffracted towards the opposite side. Transmission gratings, according to the definition above, cannot be performed with fiber Bragg gratings.

Myers et al. teach a mechanical constriction system wrapped around an optical fiber containing a fiber Bragg grating. The current application uses a volume holographic grating, which is a functionally different element than a fiber Bragg grating.

The grating element used in the rejection is different from the element used in the present invention and therefore the teachings of the present invention cannot be rejected under 35 U.S.C. 102(e).

The functional recitation of claim 1 has been amended.

Claims 2-5, 8-12, 19,22-33, are dependent claims based on independent claim 1 .

Inasmuch as claims 1 is allowable, these dependent claims are allowable by definition.

Claims 39-42,45-50,54-56 and 59-69, are dependent claims based on independent claim 38. Inasmuch as claims 1 is allowable, these dependent claims are allowable by definition.

3. Claim Rejections under 35 U.S.C. § 103(a)

Claims 1-12,19,22-49, 56 and 59-73 are rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Sullivan et al. (US 6,621'957), in view of Glenn et al. (US 4,807'950), Glenn et al. (US 5,388,173) or Laming et al. (US 6,169,829).

Claims 1-12, 19-49 and 56-73 are rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Sullivan et al. (US 6,621'957) , combined with either Glenn et al. (US 4,807'950) , Glenn et al. (US 5,388,173) or Laming et al. (US 6,169,829), further in view of Fells et al. (US 6,363,187) .

Claims 1-18 and 38-55 are rejected under 35 U.S.C 103(a) as being unpatentable over Myers et al. (US-2003/0210863) in view of Sullivan (US 6,621'957) combined with Glenn et al. (US 4,807'950), Glenn et al. (US 5,388,173) or Laming et al. (US 6,169,829).

Glenn et al. '950, '173, Laming et al '829, Fells '187 teach methods to record reflective fiber Bragg gratings in the core of the optical fiber. Because the element in the application is a volume holographic grating, which has a very different shape and size than a fiber Bragg grating (thin tube versus thick slab), the methods described by the patents above are not applicable to volume holographic gratings.

The functionality of the element used in the rejection is different from the element used in the present invention and therefore the teachings of the present invention cannot be rejected under 35 U.S.C. 103(a).

The grating element used in the rejection is different from the element used in the present invention and therefore the teachings of the present invention cannot be rejected under 35 U.S.C. 102(e).

Claims 2-37 are dependent claims based on independent claim 1. Inasmuch as claims 1 is allowable, these dependent claims are allowable by definition.

Claims 38-73, are dependent claims based on independent claim 38. Inasmuch as claims 1 is allowable, these dependent claims are allowable by definition.

## **CONCLUSION**

Applicants have made an earnest and *bona fide* effort to clarify the issues before the Examiner and to place this case in condition for allowance. Reconsideration and allowance of all of claims 1-73 is believed to be in order, and a timely Notice of Allowance to this effect is respectfully requested.

Should the Examiner have any questions concerning the foregoing, the Examiner is invited to telephone Dr. Christophe Moser at (626) 357-9600. He can normally be reached Monday through Friday from about 9:00 AM to 6:00 PM Pacific Time.

Respectfully submitted,

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